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ABSTRACT

This report, which presents various economic and demographic data about Hawaii, is intended to assist persons responsible for the short-term planning of vocational-technical education programs in the state. The report is organized in terms of a series of potentially relevant concerns that should be considered during the educational planning process. The first part summarizes the major demographic projections for the state, examines the relationship between employment opportunities and population growth, and discusses ethnic projections and their influence on employment. Part 2 discusses the likely course of economic development on the islands of Hawaii, Oahu, Lanai, Kauai, Molokai, and Maui and examines the role of defense in the state's economic development. The third part deals with the implications of demographic trends, population growth, ethnicity, industry, and economic development for vocational education and describes the state's employment outlook for the foreseeable future. A series of tables and technical data about the state as a whole and the individual islands is appended. (MN)

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STATE VOCATIONAL EDUCATION RESOURCE DOCUMENT:

PLANNING FOR THE INTERMEDIATE FUTURE

1987

STATE BOARD FOR VOCATIONAL EDUCATION

UNIVERSITY OF HAWAII
SINCLAIR ANNEX
HONOLULU, HAWAII 96822

This report was prepared by Dr. William Broadbent. Consultation and editorial review was provided by the State Director for Vocational Education, Dr. Lawrence Inaba. Other state agencies, news gathering and organizations provided valuable information and data.

Preface

This document was developed to assist vocational planners in designing future programs by reviewing and analyzing demographic and economic projections of the state and its impact on vocational education in Hawaii. Much of the projections included in this document are based on analysis of the most recent data available, research results, and comments of knowledgeable people throughout the community.

In the future, vocational education in Hawaii will face many challenges. It is hoped that this document will aid in recognizing the major factors that will impinge on the vocational education programs of the future.

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Introduction

In order to develop educational and training plans, it is necessary to make some assumptions based on given historical data. Historical data may not anticipate breakthroughs in technology or changes in the international economy. However, the Department of Planning and Economic Development (DPED) has concluded that this is the most viable strategy presently available.

The forecast models that are usually considered in such an exercise include: the "best possible scenario," the "worst possible scenario" and the "most likely scenario." Data on high and low projections for each of the population, economic, and occupational variables were informally examined. Where available, "most likely scenario" data were also considered. However, in the end it was decided to describe the data, on the variables considered most relevant, as the "quite possible scenario."

This report is organized in terms of a series of potentially relevant concerns to be considered in the planning process. The first part provides statistical projections for immediate and intermediate future. The second part of the document looks at development. The third looks at implications for vocational education in terms of physical considerations.

Part I

Descriptive Demographic Data

Demographic Projections

In 1986 the approximate population of the state was about 1,177,000. That figure includes some 133,000 visitors present on an "average day" but does not include approximately 18,000 residents temporarily out-of-state on a given day.

This represents a density of about 68.1 per square mile. This density is about twice that of the rest of the nation.[1]

The number of people in Hawaii is growing more rapidly than that of the nation as a whole. However, over the last few years the rate of increase has declined. During the decade of the '70s the annual growth rates was approximately 1.1 percent for the nation as a whole but 2.3 percent for the resident population of Hawaii. For the 1980-86 period, these annual rates had fallen to 1.0 percent for the entire nation and 1.5 percent for Hawaii. In 1986, Hawaii ranked 39th among the 50 states in total population and had the 12th percent increase since 1980.[2]

Population of Hawaii

Those who consider themselves "residents" of Hawaii increased by 97,000 between April of 1980 and 1986. The growth was the result of 115,500 live births and a net in-migration of 15,600. There were 33,400 deaths during this period. The data include military families. This group accounted for 21.0 of the births but only 2.1 percent of the deaths.

Excluding military personnel and their dependents net in-migration was 35,900. This represented an annual figure of about 5,700.[3]

The resident population, which includes members of the armed forces and their dependents but does not consider visitors, is expected to rise from

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[1]Staff, Provisional Estimates of the Population of Hawaii, 1986, Statistical Report 195, (Honolulu, Department of Planning and Economic Development), January, 1987, passim.

[2]Ibid.

[3]Ibid.

969,000 in mid-1980, and in mid-1980 to 1,310,000 in 2005. This would represent a 1.2 percent per year growth rate.[4]

Most studies of demographic and economic prediction models have found that planners have difficulty in achieving success in making projections for more than five years with any degree of clairvoyance. The most interesting research on the phenomenon of "planning" was done by the SDC Corporation.[5] As a consequence, the data projected for 1990-1995 have been displayed herein (refer to Tables 1 and 2). In 1980, the median age was 28.4. It is projected to go up to 31.3 in 1990 and only slightly higher to 32.5 in 1995 (refer to Table 3).

In terms of population shifts, no county is expected to suffer a decline. DPED projections show a general continuation of trends of the recent past. The slowest growth is likely to be on Oahu and and the more rapid in Kauai and Maui counties. However, despite the fact that Oahu will grow as the slowest pace among the four counties it anticipated absolute gains in population and employment, and incomes are anticipated to be the greatest in this county than in any other (refer to Table 4-7).

Relationship of Employment Opportunities to Population Growth

It is anticipated that employment opportunities will increase at about the same rate as the population. By the year 1990, the population will have increased about 17 percent over 1980. The number of new jobs will have

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[4]Staff, Population and Economic Projections for the State of Hawaii: 1980-2005, (Honolulu, Department of Planning and Economic Development), July, 1984, p. 5.

[5]Marvin Adelsen et al., A Pilot Center for Educational Policy Research Final Report Part I, (Santa Monica, Systems Development Corp.), 1968.

increased by about 15 percent. By 1995, the population will have increased about 24 percent over 1980 levels. Employment opportunities will have increased about 23 percent over the same period.[6]

Again, refer to Table 1. In that Table, employment projections are provided for five major areas. Other economic data such as personal income and the gross state product are provided for the base year and for the two projection years.

However, the county data are included in much greater detail. It should be remembered that as the unit of analysis declines in size, the probability of the validity of the projection also is diminished (refer to Tables 4-7.)

Economic and Industrial Projections

Chapter 226 of the Hawaii Revised Statutes as amended required that the planning arm of the state government prepare and review an overall state plan and revise it periodically. The most recent revision was done in 1986.[7]

In 1963, the tourist industry was responsible for only 9 percent of the gross state product (GSP). Twenty years later, it accounted for 24 percent of the GSP. At present the visitor industry accounts for over one-third of all civilian jobs in Hawaii and one-third of the personal income.

The federal government, which is the second largest contributor to the economy, has maintained about the same percentage of the gross state product.[8]

The original state plan stressed a diversified economy and continued support for agriculture. However, sugar and pineapple account for only about 6

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[6]Staff, Hawaii Population and Economic Projections and Simulation Model: Updated State and County Forecasts, loc. cit., July, 1984, passim.

[7]Staff, The Hawaii State Plan Revised, (Hawaii, Department of Labor and Economic Development), 1986, p. 5.

[8]Ibid., p. 16

percent of the gross state product at present. Employment in sugar has suffered major declines in the last 20 years. Employment in pineapple has declined drastically. Recently Del Monte announced the closing of its entire Molokai operation. Del Monte is the second largest employer on the island and this will result in the loss of about 100 jobs. The sugar industry is heavily subsidized by the federal government. Nutra-sweet and cheap foreign sugar make the future of this traditional, mainstay industry questionable.

The brightest spot in agriculture has been the macadamia nut industry. In a little more than 25 years, it has increased its production from a $1 million to a $24 million crop.[9]

In 1976, a general opinion survey indicated that 75 percent of those canvassed felt new businesses should be located on the outer islands. By 1984, the figure had dropped to 62 percent.[10] Oahu is still the place to be, in terms of economic opportunity, and this is likely to be so for the next ten years.

The DPED predicts, in general, a continuation of trends of the last two decades. Visitor arrival will continue to grow albeit at a declining rate (refer to Table 8).[11]

Federal defense expenditures in adjusted dollars, that compensate for inflation, are expected to increase 2 percent a year.[12]

The planners at the state level believe the value of sugar and pineapple production will remain fairly constant. However, because of technology and

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[9]Ibid., p. 16

[10]Ibid., p. 16

[11]Staff, Hawaii Population and Economic Projections and Simulation Model: Updated State and County Forecasts, loc cit., p. 24.

[12]Ibid.

market conditions, a steady decline in these industries in terms of employment is expected (refer to Table 8).[13]

Ethnic Projections and Their Influence on Employment

Several attempts were made to identify the demographic profile of the state for the years under study. It was hoped that this might shed some light into employment and corresponding areas in which the economy needs to be expanded. Consultation with officials from the U.S. Office Bureau of Census and the Hawaii Department of Planning and Economic Development resulted in the following conclusions.

Most projections on ethnicity are apparently done on the basis of historical data. The recent trends appear to be constant. It is anticipated that due to in-migration there will be a slightly higher percentage of Caucasians and Filipinos in the next decade. However, improving conditions in the Philippines could alter the course of in-migration from that country. From this group, the Filipinos have tended to aggregate around professions such as accounting which requires little English proficiency. However, the second generation of Filipino immigrants is acquiring fluency in English rapidly. Many of the Caucasian in-migrants are retirees. As a consequence, they do not contribute to the labor force in a significant manner. They do bring retirement incomes which aid the overall state economy.

To develop a good model one would have to fastidiously track in-an-out migration, mortality, and birth rates. The cost involved in such an endeavor would not justify any probable benefit derived.

One must assume that the racial composition of the islands will not change dramatically during the next few years. The relationship of race to occupational preference has yet to be established empirically in any case.

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[13]Ibid., pp. 24-28.

Part II

Significant Economic Projections

Economic Development on the Big Island

The Kona Coast is something of a marvelous aberration. Two major local hotels presently exist in the midst of a vast lava flow. The contrast is striking. The luxury hotels which front on the ocean are virtually cities in themselves. The "pampered" tourists need not leave them. Every amenity to make the visitors' stay pleasant is provided. Soon these hotels will be joined by a third even more colossal in conception. It will have man-made canals located in such a way that they aesthetically meander throughout the golf courses and gardens.

Economic development, as in the rest of the State, will increasingly be tourist oriented. It is anticipated that a town next to and similar to that of Kailua-Kona will emerge which will include a commercial village. From North Kona to Kohala, expensive condominiums will be clustered as water resources permit.

Housing for those of middle incomes is likely to be built on the edges of the north and south coast resort areas, the uplands, in Northern Kohala and in Waimea. Those with lower incomes will have to live elsewhere. Ironically, it is this group that will occupy a good proportion of the service occupations entailed in a hotel operation of this size.

Noting, however, in this case the lack of affordable housing, County Housing Director Scott Leithead has suggested a joint project to create a new community at Kealakehi, with 4,500 to 6,000 "affordable" housing units.

Efforts are also being made to develop a viable aquaculture industry in the Kona area. The sources of these projections are business and government leaders. Their compliance is bolstered by the fact that as much as $3 billion in new development has already been publicly proposed for the North Kona-South Kohala areas.

The mayor of Hawaii County warns that the public sector cannot support the infrastructure of water and sewage facilities required to service such an extensive development. This is usually the responsibility of government. However, in this case the private sector will have to make a substantial contribution.

In order to avoid a "strip" style development along the coast, many planners have suggested mandating gaps in development. The unavailability of water in some areas of the coast may ensure this. Hilo, on the other hand, is looking to diversified agriculture and geothermal energy to stimulate the development of suburbs around the historic but decaying Hilo downtown.

The fact that Mauna Kea is generally regarded as the best location for optical telescopes in the world, has led to the development of an astronomy industry. Recently it was decided to locate the largest telescope in the world on that site. While the industry generally employs persons primarily with professional degrees, it also provides limited opportunities for technicians and may make Hilo a center for high technology.[14]

Economic Development on Oahu

The last state administration encouraged foreign investment. Approximately 25 percent of the Waikiki ocean front hotels are now foreign owned. Australians recently bought the Princeville Resort and Japanese investors recently purchased the Ala Moana Hotel and most of the Hyatts. They own the major interest in the Ala Moana Shopping Center and the Holiday Mart outlets.

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[14]Rod Thompson, Honolulu Star Bulletin, (Honolulu, February 17, 1987), section IV, p. 18.

The "big five" which now only accounts for about 6 percent of the state gross product appears to be systematically liquidating many of its Hawaii investments.

There is a proposed project for the Ewa region of Oahu being coordinated by the Campbell Estate. The principal planner of the Campbell Estate reports that the development will be modest. A golf course is under construction. It will be followed by an adjoining luxury hotel and housing for upper income families. This is to be followed by a modest shopping center not atypical of that at Windward Shopping Center. It would consist of a large food market and drug store and several specialty shops. However, the February 17, edition of the Honolulu Star Bulletin reports that Arnold Morgado, the newly sworn in City Council Chairman, feels the development will be much greater. He and others envision a second city to eliminate the necessity of having persons living in the Leeward and Central Oahu areas commuting into the well-established Honolulu and Waikiki areas. He did not indicate what jobs residents of this second city would occupy.

The concept of a major resort area in Ewa seems to be supported by the efforts of Herbert Horita and a group of foreign investors. Horita, according to an article in the February, 1987 Hawaii Investor magazine will have a 40 percent share in a joint venture with Japan's Kumagai Gumi international development firm. If the plans go as presently projected, there will be a resort the size of Waikiki, a 400-ship marina and 8 hotels. By 1995, it is envisioned that there will be 4,000 hotel rooms, 5,200 condos, and an 18-acre shopping center in this area. According to this newspaper source, the shopping center will involve four movie houses and several first class restaurants. There would also be four man-made lagoons, 100 acres of parks, and according to

the prospective developer, hundreds of trees and many waterfalls. The development is termed Ko Olina and is scheduled for completion between two and three and one-half years from the starting date.

Many short-term construction jobs have a substantial number of long-term service jobs.

Economic Development Projections on Lanai

At present 98 percent of Lanai's 90,400 acres is owned by Castle and Cooke. The property is administered through the auspices of the Dole Company plantation. However, technology will reduce the number of workers required for pineapple cultivation. Like the rest of Hawaii, the shift in economic development will increasingly be toward tourist related industries. Stephanie Costello in the February 17, edition of the Honolulu Star Bulletin reported that two major resorts are planned. They are as follows:

A 478-acre Koele project to be developed north of Lanai City. It is anticipated that 150 rooms of the 21-acre, 250-room complex will be completed in 1988. Four hundred moderately priced, single- and multiple-family homes will be constructed at a future date.

There is also the 422-acre Manele project which is planned at Hulopoe Bay. The first 150 rooms of a planned 400 hotel rooms at the 50-acre complex are to be ready for occupancy in early 1989. The first of 100 of 300 rooms designed for those in the upper incomes is slated for 1990. A 5-acre commercial area is also to be provided.

Economic Development on Kauai

Resort development appears to be the major thrust on Kauai. The Honolulu Star Bulletin (February 17, 1987) reports that the present mayor favors hotels and restaurants that would appeal to the more "affluent visitor."

The east coast of Kauai is expected to experience the most development. Developer Chris Hemmeter's $400 million West Hotel Resort and Grove Farms has projected a 464-acre residential subdivision. It is believed that light industry will possibly achieve some degree of development during the 7-year period.

Hemmeter's 580-acre resort in Lihue, the island's first "megaresort," will be geared for the affluent traveler.

The resort is designed to have some 1,600 rooms, five restaurants, tennis courts, a 40-acre lagoon with ferries, boats and docks, shopping complexes, two 18-hole golf courses, horse trails and stables and a renovated convention hall.

Rhode Island developer Dan Patrick plans to build a $20 million, multi-storied shopping center within a mile of Hemmeter's project. It will feature underground office spaces.

Plans also call for an ice rink, a 32-lane bowling alley, large aquariums and a bus system between the airport and the shopping center.

Economic Development on Molokai

Not unlike many other areas of the State, Molokai is pulled in two divergent directions. One group of residents wants to maintain the traditional rural life style and the other would like to see economic development and increased growth. However, the recent announcement of the forthcoming closure of the Del Monte pineapple plantation on Molokai may have made the issue mute. The loss of approximately 100 jobs in a small and isolated economic region virtually mandates the development of new sources of investment and employment.

Some have advocated renewed emphasis on diversified agriculture. According to a recent study conducted by Decision Analysts Hawaii, Inc., Molokai has a competitive edge in agriculture in that it has some of the least

expensive land and water in the state. According to these analysts, the more promising activities for future growth include: production of selected produce for the Honolulu market, seed corn, rooted green stock, papaya and sweet corn for export, renewed cattle production based on cell grazing and local feeds, and trees grown for fuel for Molokai Electric [15].

Fisheries have also been mentioned, but the best prospect as in the other islands would still appear to be in the area of tourism. At present, Molokai is being marketed primarily by Kaluakoi Resort and Sheraton Molokai Hotel.[16] A recently formed association described as "Destination Molokai" has begun marketing the island with financing from public and private donations. The primary marketing there is to present Molokai as the most Hawaii of the Hawaiian islands.

Considerable preapprenticeship training is being offered by the Sheraton Hotel.

Economic Development Projections for Maui

Once again the visitor industry is the key to development in the next few years. The source of this information is the Star Bulletin's February 17, 1987 edition.

Among the developments which are of major significance are the $11 million Lahaina Cannery Shopping Center and the new $50 million expansion at the Kahului Airport.

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[15]Bruce S. Plasch et al., An Economic Development Strategy and Implementation Program for Molokai, (Honolulu, State of Hawaii), June 1985, pp. ES-2 and ES-3.

[16]Ibid., p. V-30.

The Wailea Resort will be enhanced by a 208-unit condominium project. This is being done by the Grand Champion Resorts Development Corporation. There will also be an 800-room Grand Hyatt Hotel and a 88- to 100-unit condominium unit. This is to be complemented by a 350-unit Embassy Suites Hotel, a 350-room Four Seasons Hotel, a 102-lot Wailea Kealoa homesite project and a 129-unit Wailea Point Condominium project.

In the affluent Kaanapali area a 415-room Embassy Suites Hotel is planned. At the Kapalua Resort another 450-room hotel is on the drawing boards.

A representative from AMFAC is planning four to five hotels with a total of about 3,200 rooms. And finally, Seibu Hawaii has obtained zoning for another hotel at its Makena Resort but planning may take several years.

Role of Defense

The First Hawaiian Bank lists defense expenditures in Hawaii at about $2 billion a year. It represents the second largest contributor to the State's gross product. There is no radical alteration in the military's profile in the islands in the next ten years.[17] At present there are about 58,000 military personnel and 57,000 dependents based in the islands. There are approximately 50 ships including the Pacific nuclear submarine fleet stationed at Pearl Harbor.

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[17]Harold Morse, Honolulu Star Bulletin, (Honolulu, February 17, 1987), section IV, page 31.

Part III

Implications Relative to the Issues Discussed to this Point for Vocational Education

Demographic Trends

While there will be some dispersion of the population of the state in relative terms, the greatest demand for a skilled work force will still be on Oahu. The growing population of the outer islands coupled with available employment opportunities in hotel construction and operations will generate new demands for training and retraining. These occupational training needs will probably have to be met by the community colleges.

Programs having demonstrated wide appeal and demand such as food service, secretarial science, and automotive technology should continue to be offered in every county if not on every major island.

Population

The population of the state will continue to grow although at a slower rate. The average age will probably continue to rise but not at the same rate as mainland states. This will require more programs of an in-service nature.

However one must, at least, leave room open for the consideration of such future imponderables as political unrest in the Pacific rim region. Hong Kong will soon revert to administration by mainland China, President Aquino has yet to solve the riddle of the stagnant Filipino economy, economic difficulties in Western Samoa, and a recent civil insurrection in Fiji have introduced numerous vagaries which may influence patterns of in-migration to this cosmopolitan, island state.

How can substantial numbers of in-migrants from these areas be socially and, perhaps, more importantly be assimilated within the economic infrastructure of the state? Special training programs and crash courses in

English literacy might have to be developed within very short time frames. This would provide a unique challenge for the community colleges.

The programs, because they will involve large numbers of adults with dependents and other financial responsibilities, will have to be of an "open-entry" design, of short duration, and flexible in terms of time and site availability. More women will be attracted to courses and employment as well. Their special need in terms of child care and other special services will have to be considered as well.

Almost 60 percent of the students enrolled in automotive technology at Honolulu Community College are already employed to some degree in their field. In fact, most community college students hold some kind of job although not necessarily in the area in which they are training. Many high school students are employed part-time in such areas as fast food outlets. Therefore, vocational training will have to be more sensitive of the work demands of students and assist them in obtaining placement in jobs they may consider temporary in nature while they are in college. The colleges should also do more in the way of assisting students in finding positions that may represent long-term careers.

Ethnicity

No agency is willing to make any definitive assessment of long-term or even short-term projections about possible shifts in the ethnic composition of Hawaii. Most analysts see a continuation of trends identified over the last decade. Proportionately, there may be a few more Caucasians. These new arrivals are likely to be comparatively affluent mainland in-migrants who, while contributing to the economy, are likely to be retirees and/or persons living off endowments.

The number of immigrants coming from Far East areas such as the Philippines and Hong Kong will largely be dependant on the political stability of these areas.

A substantial number of immigrants from any of the unstable or economically stagnant areas of the Pacific region would involve the necessity of providing crash courses in English language acquisition as well as developmental courses in basic skills. This instruction for basic English and math fundamentals would need to be correlated with an exposure to vocational training adjusted to meet their special needs. Special assistance in counseling and placement will also be necessary. Inclusion within some sort of productive economic enterprise will be essential. An influx of new arrivals on to welfare roles would produce resentment and possible hostility on the part of the established population.

It is probably unwise to speculate regarding the relationship of the ancestry of any particular group and their proclivity to be attracted to any given occupation. Traditional stereotypes are probably being eroded if they do, in fact, exist. In any case, this factor should probably not have any significant influence in vocational education planning.

Industry

The Matsuda Center may be able to make some positive enrodes in the area of high technology. Only time will tell if creative minds and focused energy can turn the trick. The existence of a well-trained work force in high-tech, might be a positive inducement for companies heavily committed to this high technology design and manufacture to locate here.

In agriculture, economists have predicted a persistence of the major elements of the plantation economy. However, recent criticism of federally sponsored sugar support programs, the increasingly popularity of artificial

sweetners such as nutrasweet, and announcements by the Castle and Cook corporation regarding its future plans would suggest the future of sugar may be bleak.

The plantations, cultivation and harvesting of pineapple is likely to be increasingly automated. This could require some skilled technicians in mechanical and electrical repair.

However, a change in the economic base of the islands will require extensive retraining of adults for more productive careers and to ensure the competitive position of the state economically. It is important to remember that adults require different educational strategies than those we have come to refer to as "traditional" students.

New occupations, many of them associated with the visitor industry, will need to be created. People, most of whom will be adults, will need to be retrained. A displaced worker must not be allowed to languish. A quick referral to an intensive, short-term training program will be essential. These training programs must be interfaced with employment opportunities that are or can be predictably identified. Honolulu has too many street people as it is.

Defense related employment is likely to be relatively constant as is the demand for skills training in areas related to this industry.

The visitor industry is the area in which there has continued to be a major growth area since the late fifties. Training programs in service occupations will need special emphasis.

In summary, vocational educators should consider a modest increase in the production of persons in high technology areas, be conservative in their production of agricultural specialists, sustain present levels of training in defense related areas, and provide more abundant training programs in areas related to the visitor industry.

Economic Development

There may be a major building boom in the next decade and a half. The override of the Presidential veto of the federal highway act and the ability of contractors and construction unions to get H-3 excluded from provisions of environmental protection laws will provide a large number of high-paying jobs in the construction industry. Foreign and domestic proposals for hotel and resort developments on Oahu in the Leeward, Northshore, and Sandy Beach areas will also provide high-paying construction jobs for a time. The other islands will also benefit from ambitious hotel and residential projects in the next several years.

However, the projected growth rate in tourism is projected by the Department of Planning and Economic Development to slowly decline. This may ultimately cause a construction slump not unlike that experienced in the last decade.

Hawaii may also have difficulty training enough construction workers projected for the immediate future. Skilled workers may likely be imported from the mainland and abroad.

Employment Outlook for the Foreseeable Future

Construction may boom briefly creating a large number of jobs. Employment opportunities in such areas as health care, mechanical repair, and business support areas should require a sustained demand for vocational education. The need for training in high technology is less certain and training requirements in agriculture are not likely to increase. The greatest training needs for the forseeable future would appear to be in construction and visitor industry-related skills.

With more women and single heads of households entering the employment market, special programs will be needed to meet their particular needs.

To the extent possible, we should not allow extenuating factors to influence our direction. Good investment planning and effective vocational education adaptation to changing conditions can help us be the masters of our economic destiny. The emphasis for vocational education planners for the intermediate future should be on "productivity," "competitiveness," and "retraining."

Summary

In summary, the implications for Vocational Education are many and planners should be cognizant of the factors that will necessitate changes for the future. Vocational education at both the secondary and postsecondary levels, according to national trends, will experience an increased demand for services by special needs populations such as women, disadvantaged, handicapped, immigrant, and Native Americans. An increasingly older population that is less likely to migrate out of state, coupled with a growing economy and a pool of untrained workers, will make vocational training for a wider variety of people an economic necessity. To meet their demands, vocational education programs will need to become more flexible.

Occupational growth trends indicate changes will be occurring in many occupations and specific jobs in the intermediate future. Some occupations will grow while others will decline. All of this would seem to suggest a substantially expanded and intensified role for vocational training institutions in educating and retraining the current and future work force. It also signals a significant need within our state to upgrade teachers, equipment and curricula, as well as to design programs to assist people in meeting their immediate and longer term employment objectives. According to the American Society for training and development, 75 percent of today's workers will require retraining by the year 2000.

Employers' needs are affected by company growth and the ensuing changes will require different needs in the type and mix of workers they employ. Large employers frequently express a need for employees who have a solid general education background because they claim that technical skills can be learned on the job. However, many of the large employers are also reluctant to provide training in such entry-level skills as typewriting. Smaller firms, on the other hand, express needs for employees to have both general education and technical skills, because these employers have neither the resources nor the time to provide technical training for the employees. For these reasons, it is difficult to define precisely what employers as a whole require in terms of the kinds of skills that workers must possess. However, Hawaii's vocational training system is a complex enterprise that responds to a wide variety of human and economic needs related to employment.

The demographic and labor market issues addressed in this document suggest some needed new directions and modifications for vocational education programs if it is to be responsive to the citizens as well as business and industries of our state.

Appendix A

Tables and Technical Data

Table 1

SUMMARY OF STATE POPULATION
AND ECONOMIC PROJECTIONS
(in thousands)

Variable	Estimated 1980	Projections 1990	Projections 1995
Resident population (1,000)	969.0	1,138.4	1,211.5
De facto population (1,000)	1,055.9	1,277.5	1,373.0
Total jobs (1,000) 1/	499.5	572.3	613.4
Agriculture	11.5	11.0	10.6
Manufacturing	23.8	23.0	23.4
Nonmanufacturing	287.9	345.2	378.3
Government 1/	147.4	158.1	163.4
Self-employed	28.9	34.9	37.7
Personal income ($ 1980 millions)	9,862.0	12,896.3	14,774.3
Per capita personal income ($ 1980)	10,188	11,328	12,195
Gross State Product ($ 1980 millions	11,336.2	14,061.8	16,192.3

1/ Includes military jobs.

Source: Department of Planning and Economic Development Technical Report, July, 1984.

Note: Projections are made using high, moderate, and low forecast assumptions. The data used herein are for moderate forecast assumptions.

Table 2

SUMMARY OF POPULATION AND ECONOMIC PROJECTIONS BY COUNTIES
(in thousands)

County and Variable	Estimated 1980	Projected 1990	Projected 1995
Honolulu:			
Resident population (1,000)	765.0	859.3	896.9
De facto population (1,000)	823.7	941.1	985.2
Total jobs (1,000)	411.7	452.4	475.9
Personal income ($ 1980 millions)	8,107.0	10,123.8	11,398.6
Per capita personal income ($ 1980)	10,599	11,781	12,709
Hawaii:			
Resident population (1,000)	92.8	122.6	134.4
De facto population (1,000)	99.3	135.1	150.6
Total jobs (1,000)	36.6	46.6	52.1
Personal income ($ 1980 millions)	771.0	1,115.0	1,324.7
Per capita personal income ($ 1980)	8,326	9,095	9,856
Kauai:			
Resident population (1,000)	39.3	55.1	63.9
De facto population (1,000)	46.3	66.9	79.3
Total jobs (1,000)	17.6	24.4	28.7
Personal income ($ 1980 millions)	335.0	528.5	661.2
Per capita personal income ($ 1980)	8,546	9,592	10,347
Maui County:			
Resident population	71.9	101.4	116.3
De facto population (1,000)	86.7	134.4	157.9
Total jobs (1,000)	33.7	48.8	56.6
Personal income ($ 1980 millions)	648.0	1,129.0	1,389.9
Per capita personal income ($ 1980)	9,008	11,134	11,951

Source: Department of Planning and Economic Development: Technical Report, July, 1984.

Table 3

RESIDENT POPULATION BY AGE AND SEX: 1980 to 2005

	Estimated			Projections					
	1980			1990			1995		
Age in years	Total	Male	Female	Total	Male	Female	Total	Male	Female
Total	968.0	496.6	471.4	1,138.4	578.5	560.0	1,211.5	613.2	598.3
0 to 4	77.2	39.7	37.6	89.4	45.7	43.6	91.3	46.7	44.6
5 to 9	73.6	38.0	35.6	83.4	43.0	40.4	87.0	44.8	42.2
10 to 14	75.0	38.8	36.2	78.1	40.1	38.0	82.1	42.1	40.0
15 to 19	86.3	45.9	40.5	82.9	44.6	38.3	85.2	45.8	39.4
20 to 24	106.3	59.4	46.8	109.5	62.7	46.8	109.5	62.8	46.6
25 to 29	95.8	48.8	47.0	101.4	52.5	48.9	101.2	52.8	48.4
30 to 34	85.1	43.6	41.5	98.2	49.8	48.4	99.6	51.0	48.7
35 to 39	65.5	33.4	32.1	88.8	44.8	43.9	93.5	47.4	46.1
40 to 44	46.9	23.5	23.4	75.6	37.7	37.9	84.1	41.9	42.2
45 to 49	43.6	20.8	22.8	61.8	30.2	31.6	72.7	35.6	37.1
50 to 54	49.8	23.2	26.6	52.8	25.4	27.4	62.2	30.1	32.1
55 to 59	48.3	24.2	24.1	47.7	22.6	25.1	53.2	25.4	27.8
60 to 64	38.3	19.0	19.3	44.8	21.1	23.7	47.2	22.2	25.0
65 to 69	28.8	15.3	13.5	40.0	19.1	20.9	42.1	19.7	22.5
70 to 74	20.6	11.0	9.6	32.2	15.5	16.7	35.7	16.5	19.2
75 to 79	13.7	6.6	7.1	23.1	11.1	12.1	27.4	12.5	14.9
80 to 84	7.6	3.3	4.3	14.8	6.9	8.0	18.5	8.2	10.3
85 and over	5.6	2.1	3.5	14.0	5.7	8.3	19.0	7.7	11.3
Median age	28.4	27.7	29.2	31.3	30.1	32.5	32.5	31.1	33.9

Source: Department of Planning and Economic Development: Technical Summary

Table 4

POPULATION AND ECONOMIC PROJECTIONS
HONOLULU (OAHU)

Variable	Estimated 1980	Projections 1990	1995
Resident population (1,000)	765.0	859.3	896.9
De facto population (1,000)	823.7	941.1	985.2
Total jobs (1,000)	411.7	452.4	475.9
Military jobs	58.4	58.4	58.4
Civilian jobs	353.3	394.0	417.5
Agriculture	3.8	2.4	2.2
Manufacturing	17.5	17.0	17.2
Construction	19.5	18.2	19.7
Trans., com., and util.	25.7	28.4	30.0
Eating and drinking places	28.6	33.3	34.9
Other trade	59.0	69.0	75.1
Finance, insurance, and real estate	27.0	30.6	32.4
Hotels	15.2	16.2	16.8
Other services	62.6	75.0	81.1
State and local government	46.7	50.3	52.6
Federal government	28.9	31.8	32.6
Self-employed	18.8	21.8	22.9
Personal income ($ 1980 millions)	8,107.0	10,123.8	11,398.6
Per capita personal income ($ 1980)	10,599	11,781	12,709

Source: Department of Planning and Economic Development: Technical Report, July, 1984.

Table 5

POPULATION AND ECONOMIC PROJECTIONS
HAWAII (BIG ISLAND)

Variable	Estimated 1980	Projections 1990	1995
Hawaii:			
Resident population (1,000)	92.8	122.6	134.4
De facto population (1,000)	99.3	135.1	150.6
Total jobs (1,000)	36.6	46.6	52.1
Military jobs	0	0	0
Civilian jobs	36.6	46.6	52.1
Agriculture	3.0	3.8	3.8
Manufacturing	2.9	2.8	2.8
Construction	1.9	2.0	2.2
Transp., com., and util.	1.9	2.5	2.9
Eating and drinking places	1.9	3.5	4.3
Other trade	5.1	6.5	7.2
Finance, insurance, and real estate	1.2	1.5	1.7
Hotels	3.1	4.5	5.3
Other services	3.9	5.1	5.9
State and local government	5.9	7.3	8.1
Federal government	.6	.7	.7
Self-employed	5.4	6.5	7.2
Personal income ($ 1980 millions)	771.0	1,115.0	1,324.7
Per capita personal income($ 1980)	8,326	9,095	9,856

Source: Department of Planning and Economic Development: Technical Report, July, 1984.

Table 6

POPULATION AND ECONOMIC PROJECTIONS
KAUAI

County and Variable	Estimated 1980	Projections 1990	1995
Kauai:			
Resident population (1,000)	39.3	55.1	63.9
De facto population (1,000)	46.3	66.9	79.3
Total jobs (1,000)	17.6	24.4	28.7
Military jobs	0	0	0
Civilian jobs	17.6	24.4	28.7
Agriculture	1.5	1.6	1.4
Manufacturing	1.1	1.2	1.3
Construction	.9	1.1	1.3
Transp., com., and util.	1.6	2.2	2.6
Eating and drinking places	1.4	2.4	3.1
Other trade	2.3	3.3	4.1
Finance, insurance and real estate	.9	1.2	1.4
Hotels	1.9	3.0	3.7
Other services	1.8	2.8	3.3
State and local government	2.5	3.4	3.9
Federal government	.3	.3	.3
Self-employed	1.4	2.0	2.3
Personal income ($ 1980 millions)	335.0	528.5	661.2
Per capita personal income ($ 1980)	8,546	9,592	10,347

Source: Department of Planning and Economic Development: Technical Report, July, 1984.

Table 7

POPULATIONS AND ECONOMIC PROJECTIONS
MAUI

County and Variable	Estimated 1980	Projections 1990	1995
Maui:			
Resident population (1,000)	71.9	101.4	116.3
De facto population (1,000)	86.7	134.4	157.9
Total jobs (1,000)	33.7	48.8	56.6
Military jobs	0	0	0
Civilian jobs	33.7	48.8	56.6
Agriculture	3.2	3.3	3.2
Manufacturing	2.2	2.1	2.1
Construction	1.8	2.2	2.6
Transp., com., and util.	1.7	2.4	2.8
Eating and drinking places	2.5	4.4	5.5
Other trade	4.5	6.9	8.5
Finance, insurance and real estate	2.1	3.5	4.1
Hotels	4.8	8.1	9.3
Other services	3.4	5.5	6.5
State and local government	3.9	5.7	6.5
Federal government	.3	.3	.3
Self-employed	3.2	4.5	5.2
Personal income ($ 1980 millions)	648.0	1,129.0	1,389.9
Per capita personal income ($ 1980)	9,088	11,134	11,951

Source: Department of Planning and Economic Development: Technical Report, July, 1984.

Table 8

ECONOMIC PROJECTIONS: DETAILED PERSPECTIVE

Variable	1980	1990	1995
Civilian labor force (1,000)	439.0	533.4	575.6
Persons employed	417.0	503.9	544.2
Persons unemployed	22.0	29.5	31.4
Unemployment rate (percent)	5.0	5.5	5.5
Total jobs (1,000)	499.5	572.3	613.4
Armed forces	58.4	58.4	58.4
Civilian jobs	441.1	513.8	554.9
Self-employed	28.9	34.9	37.7
Wage and salary jobs by sector	412.2	478.9	517.3
Agriculture	11.5	11.1	10.6
Sugarcane	4.8	3.6	3.2
Pineapple	2.5	2.0	1.9
Other agriculture	4.2	5.5	5.5
Food processing	11.5	11.0	10.8
Sugar processing	3.8	3.1	2.8
Pineapple	3.3	2.3	2.1
Other	4.4	5.6	5.9
Miscellaneous manufacturing	12.2	12.1	12.6
Construction	24.1	23.4	25.8
Transportation, communication, and utilities	30.9	35.5	38.3
Transportation	21.2	24.5	26.8
Communication	7.1	8.3	8.7
Utilities	2.6	2.7	2.8
Trade (exc. eating & drinking	71.0	85.6	94.9
Wholesale	18.7	21.9	23.4
Retail (exc. eating & (drinking)	52.3	63.7	71.4
Eating and drinking places	34.5	43.6	47.8
Finance, insurance, and real estate	31.1	36.8	39.7
Hotels	24.8	31.8	35.0
Other services	71.7	88.4	96.8
Health & professional services	40.9	50.4	55.2
Other services	30.8	38.0	41.6
State and local government	59.0	66.6	71.1
Federal government	30.0	33.1	33.9
Gross State Product (millions of 1980 dollars)	11,336.2	14,061.8	16,192.3
Personal income (millions of 1980 dollars)	9,862.0	12,896.3	14,774.3
Disposable income (millions of 1980 dollars)	8,385.0	11,026.3	12,632.0
Per capita personal income (1980 dollars)	10,188	11,328	12,195

Note: Totals may not add due to rounding of figures.

Source: Department of Planning and Economic Development: Technical Report, July, 1984.